UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,999	12/20/2001	Louis Vannatta	CS99004RL	1892

20280 7590 12/15/2004

MOTOROLA INC
600 NORTH US HIGHWAY 45
ROOM AS437
LIBERTYVILLE, IL 60048-5343

EXAMINER	
MILORD, MARCEAU	
ART UNIT	**PAPER NUMBER**
2682	

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/033,999	VANNATTA ET AL.	
	Examiner	Art Unit	
	Marceau Milord	2682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *1-9* is/are allowed.

6)☒ Claim(s) *10-11, 14-16, 19-20, 24* is/are rejected.

7)☒ Claim(s) *12,13,17,18,21-23 and 25-27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 10-11, 14-16, 19-20, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whikchart et al (US Patent No 6178314 B1) in view of Khayrallah et al (US Patent No 6047171) and Tuutjarvi et al (US Patent No 5809399).

Regarding claims 10-11,15, Whikchart et al discloses a method in direct conversion and intermediate frequency RF receivers (figs. 2-3), comprising: determining power for a desired signal; determining power for signal distortion products (col. 2, lines 12- 33); filtering the signal distortion products with a filter (col. 3, lines 8-41;col. 4, lines 5-38; col. 4, line 50- col. 5, line 60).

However, Whikchart et al does not specifically disclose the steps of dynamically adjusting a bandwidth of rejection of the filter as a function of the power for both the desired signal and the signal distortion products.

On the other hand, Khayrallah et al, from the same field of endeavor, discloses a receiver that includes at least two intermediate frequency filters, with the first IF filter and a second filter having a narrower bandwidth than the first bandwidth. The receiver measures the signal strength of adjacent channels to the signal strength of a desired channel and switches to the second IF filter with a narrower band width when a ratio of the signal strength of the channel and the signal strength of adjacent channels is less than a predetermined threshold. The predetermined threshold is determined based on considerations of range of detection and adjacent channel interference (figs. 4-6; col. 2, lines 1-10; col. 4, lines 14-67). Furthermore, the mobile station measures the signal strength of adjacent channels St and Sr. The controller compares the signal ratio to a first predetermined threshold stored in the look-up table in the memory (col. 5, line 6- col. 6, line 43).

Tuutjarvi et al also discloses a method and circuit for filtering disturbances in a radio receiver used in radiotelephone system. The strength of the signal of a radio device operating in a radiotelephone system is measured. The measurement result is used to calculate the disturbance caused by the transfer channel to the receiving channel, and, based on the acquired result, the frequency response of a filter included by the receiver is adjusted by changing the width or slope of the pass band (col. 3, lines 1-29). The average strength of the adjacent transfer channel is compared to the average strength of the receiver channel signal RSSI (figs. 3-4; col. 4, line 2- col. 5, line 65). Furthermore, the adjustment can be made in both intermediate frequency filter and base frequency filter. The adjustment can also be realized by having the change in the frequency response of the adjustable filter affect both the bandwidth and the slope (col. 6, line 36- col. 7, line 18). Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to apply the technique of Tuutjarvi to the modified system of Khayrallah and Whikchart in order to come up with a receiver that can dynamically reduce or eliminate adjacent channel interference.

Regarding claim 14, Whikchart et al discloses a method in direct conversion and intermediate frequency RF receivers (figs. 2-3), the signal distortion products include narrowband intermodulation distortion products, determining power for the signal distortion products by determining power for the narrowband intermodulation distortion products (col. 4, lines 5-38; col. 4, line 50- col. 5, line 60).

Regarding claim 16, Whikchart et al discloses a method in direct conversion and intermediate frequency RF receivers (figs. 2-3), comprising: determining power for signal distortion products (col. 2, lines 12- 33); determining power for a desired signal; filtering the signal distortion products with a filter (col. 3, lines 8-41;col. 4, lines 5-38; col. 4, line 50- col. 5, line 60).

However, Whikchart et al does not specifically disclose the step of dynamically adjusting a rejection of the filter as a function of the power for both the desired signal and the signal distortion products.

On the other hand, Khayrallah et al, from the same field of endeavor, discloses a receiver that includes at least two intermediate frequency filters, with the first IF filter and a second filter having a narrower bandwidth than the first bandwidth. The receiver measures the signal strength of adjacent channels to the signal strength of a desired channel and switches to the second IF filter with a narrower band width when a ratio of the signal strength of the channel and the signal strength of adjacent channels is less than a predetermined threshold. The predetermined

threshold is determined based on considerations of range of detection and adjacent channel interference (figs. 4-6; col. 2, lines 1-10; col. 4, lines 14-67). Furthermore, the mobile station measures the signal strength of adjacent channels St and Sr. The controller compares the signal ratio to a first predetermined threshold stored in the look-up table in the memory (col. 5, line 6- col. 6, line 43).

Tuutjarvi et al also discloses a method and circuit for filtering disturbances in a radio receiver used in radiotelephone system. The strength of the signal of a radio device operating in a radiotelephone system is measured. The measurement result is used to calculate the disturbance caused by the transfer channel to the receiving channel, and, based on the acquired result, the frequency response of a filter included by the receiver is adjusted by changing the width or slope of the pass band (col. 3, lines 1-29). The average strength of the adjacent transfer channel is compared to the average strength of the receiver channel signal RSSI (figs. 3-4; col. 4, line 2- col. 5, line 65). Furthermore, the adjustment can be made in both intermediate frequency filter and base frequency filter. The adjustment can also be realized by having the change in the frequency response of the adjustable filter affect both the bandwidth and the slope (col. 6, line 36- col. 7, line 18). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Tuutjarvi to the modified system of Khayrallah and Whikchart in order to come up with a receiver that can dynamically reduce or eliminate adjacent channel interference.

Regarding claim 19, Whikchart et al as modified discloses a method in direct conversion and intermediate frequency RF receivers (figs. 2-3), the signal distortion products include narrowband intermodulation distortion products, determining power for the signal distortion

products by determining power for the narrowband intermodulation distortion products (col. 4, lines 5-38; col. 4, line 50- col. 5, line 60).

Regarding claim 20, Whikchart et al discloses a method in radio communications devices having a receiver receiving a wideband signal in the presence of narrowband blockers, comprising: determining power for narrowband intermodulation distortion products (col. 2, lines 12- 33); determining power for a desired signal; filtering the desired signal and distortion products (col. 3, lines 8-41; col. 4, lines 5-38; col. 4, line 50- col. 5, line 60).

However, Whikchart et al does not specifically disclose the steps of dynamically adjusting at least one of a bandwidth of rejection and rejection of the filter as a function of the power for both the desired signal and the narrowband intermodulation distortion products.

On the other hand, Khayrallah et al, from the same field of endeavor, discloses a receiver that includes at least two intermediate frequency filters, with the first IF filter and a second filter having a narrower bandwidth than the first bandwidth. The receiver measures the signal strength of adjacent channels to the signal strength of a desired channel and switches to the second IF filter with a narrower band width when a ratio of the signal strength of the channel and the signal strength of adjacent channels is less than a predetermined threshold. The predetermined threshold is determined based on considerations of range of detection and adjacent channel interference (figs. 4-6; col. 2, lines 1-10; col. 4, lines 14-67). Furthermore, the mobile station measures the signal strength of adjacent channels St and Sr. The controller compares the signal ratio to a first predetermined threshold stored in the look-up table in the memory (col. 5, line 6- col. 6, line 43).

Tuutjarvi et al also discloses a method and circuit for filtering disturbances in a radio receiver used in radiotelephone system. The strength of the signal of a radio device operating in a radiotelephone system is measured. The measurement result is used to calculate the disturbance caused by the transfer channel to the receiving channel, and, based on the acquired result, the frequency response of a filter included by the receiver is adjusted by changing the width or slope of the pass band (col. 3, lines 1-29). The average strength of the adjacent transfer channel is compared to the average strength of the receiver channel signal RSSI (figs. 3-4; col. 4, line 2- col. 5, line 65). Furthermore, the adjustment can be made in both intermediate frequency filter and base frequency filter. The adjustment can also be realized by having the change in the frequency response of the adjustable filter affect both the bandwidth and the slope (col. 6, line 36- col. 7, line 18). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Tuutjarvi to the modified system of Khayrallah and Whikchart in order to come up with a receiver that can dynamically reduce or eliminate adjacent channel interference.

Regarding claim 24, Whikchart et al discloses a method an RF receiver (figs. 2-3), comprising: determining power for a signal distortion product (col. 2, lines 12- 33); determining power for a desired signal; filtering the signal distortion product and the desired signal with a filter (col. 3, lines 8-41;col. 4, lines 5-38; col. 4, line 50- col. 5, line 60).

However, Whikchart et al does not specifically disclose the steps of dynamically adjusting a filter rejection property as a function of the power for both the desired signal and the signal distortion products.

On the other hand, Khayrallah et al, from the same field of endeavor, discloses a receiver that includes at least two intermediate frequency filters, with the first IF filter and a second filter having a narrower bandwidth than the first bandwidth. The receiver measures the signal strength of adjacent channels to the signal strength of a desired channel and switches to the second IF filter with a narrower band width when a ratio of the signal strength of the channel and the signal strength of adjacent channels is less than a predetermined threshold. The predetermined threshold is determined based on considerations of range of detection and adjacent channel interference (figs. 4-6; col. 2, lines 1-10; col. 4, lines 14-67). Furthermore, the mobile station measures the signal strength of adjacent channels St and Sr. The controller compares the signal ratio to a first predetermined threshold stored in the look-up table in the memory (col. 5, line 6- col. 6, line 43).

Tuutjarvi et al also discloses a method and circuit for filtering disturbances in a radio receiver used in radiotelephone system. The strength of the signal of a radio device operating in a radiotelephone system is measured. The measurement result is used to calculate the disturbance caused by the transfer channel to the receiving channel, and, based on the acquired result, the frequency response of a filter included by the receiver is adjusted by changing the width or slope of the pass band (col. 3, lines 1-29). The average strength of the adjacent transfer channel is compared to the average strength of the receiver channel signal RSSI (figs. 3-4; col. 4, line 2- col. 5, line 65). Furthermore, the adjustment can be made in both intermediate frequency filter and base frequency filter. The adjustment can also be realized by having the change in the frequency response of the adjustable filter affect both the bandwidth and the slope (col. 6, line 36- col. 7, line 18). Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to apply the technique of Tuutjarvi to the modified system of Khayrallah and Whikchart in order to come up with a receiver that can dynamically reduce or eliminate adjacent channel interference.

Allowable Subject Matter

3. Claims 1-9 are allowed.

4. Claims 12-13, 17-18, 21-23, 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments with respect to claims 10-11, 14-16, 19-20, 24 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marceau Milord whose telephone number is 703-306-3023. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 703-308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MARCEAU MILORD

Marceau Milord

Examiner

Art Unit 2682

12-10-04

MARCEAU MILORD
PRIMARY EXAMINER